

SHVETSOV, V.

7689. SHVETSOV, V. -- Shornik tipovykh normirovaniy osnovnykh i vspomogatel'nykh materialov dlya remonta obuvi. Riga, Lat'mestpromproekt, 1955. 62s. 14x20cm. (M-vo mestnoyitoplivnoy prom-sti Latv. SSP) 500ekz. B. ts. -- V Vyp. Dannyykhavt: V Shevetsov. -- (55-4603) 685.31.03/685.31.04) 658.54

S0: Knizhnaya Letopis', Vol. 7, 1955

SHVETSOV, V.; NESMELOV, V.; LEBEDEVA, N.

Recovery of dichloroethane vapors in a foam layer. Mias.ind.SSSR
32 no.6:54-56 '61. (MIRA 15:2)

1. Kazanskiy khimiko-tekhnologicheskii institut im. Kirova.
(Ethane)

SHVETSOV, V., kand.tekhn.nauk

Fat extraction from bones. Mias.ind.SSSR 33 no.2:51-52 '62.
(MIRA 15:5)

(Meat industry---By-products)

37681
S/198/62/008/003/001/008
D407/D301

11.7000
AUTHORS:

Kosmodamians'kyy, O.S., Mehlin's'kyy, V.V., and
Shvetsov, V.A., (Saratov)

TITLE:

Straining an anisotropic plate having a curvilinear
hole reinforced by a rigid ring

PERIODICAL: Prykladna mekhanika, v. 8, no. 3, 1962, 237 - 247

TEXT: The stressed state of an anisotropic plate with a curvilinear
(elliptic) hole is determined by the small-parameter method, propo-
sed by S.G. Lekhnits'kiy (Ref. 1: Anizotropnye plastinki (Anisotro-
pic Plates), Gostekhizdat, 1957). The function which effects a con-
formal mapping of the interior of the unit circle onto the exterior
of the contour of the anisotropic plate, has 6 terms, viz.:

$$z = w(\zeta) = a \left[\frac{1+c}{2} \zeta^{-1} + \frac{1-c}{2} \zeta + \epsilon \sum_{k=2}^5 a_k \zeta^k \right]; \quad (1.2)$$

Card 1/3

S/198/62/008/003/001/008
D407/D301

Straining an anisotropic plate ...

($c = b/a$; a, b are axes). This makes it possible to obtain formulas for the stressed state of a plate with many holes. At infinity, the plate is subjected to uniformly distributed stresses p , which are parallel to the x -axis, and to stresses q , parallel to the y -axis. It is assumed that the deformations are small, that body forces are absent and that Hooke's generalized law applies. It is required to determine the stresses state of the plate in the neighborhood of the contour. The plate is assumed as orthotropic. The stresses σ_x , σ_y , τ_{xy} are expressed by the functions $\Phi_1(z_1)$ and $\Phi_2(z_2)$, where z is a complex variable. The functions Φ are expanded in series in the small parameter ε , and terms, up to second-order, are retained. The boundary conditions are set up. After calculations, one obtains working formulas for the stresses. In the case of an isotropic plate, the problem under consideration has an exact solution. As an example, a plate with a triangular hole is considered. The mapping function is obtained by means of expansions in terms of the Christoffel-Schwartz integral. The authors calculated the stresses which arise in the neighborhood of such holes. The results of the calculation are given in the form of graphs and tables. These lead to the

Card 2/3

Straining an anisotropic plate ...

S/198/62/008/003/001/008
D407/D301

following conclusions: 1) The presence of a rigid ring reduces sharply the stress concentration near the hole, (as compared to the case where the ring is absent). 2) The stress concentration in an anisotropic plate with a hole, reinforced by a ring, is lower than in an isotropic plate. If the hole is not reinforced, then the converse is true. 3) In the case of a veneer plate with a reinforced hole, the stress concentration is greater if $E_y = E_{\max}$ with the strain in the direction of the x-axis, and smaller if $E_y = E_{\max}$ with the strain along the y-axis. If the hole is not reinforced by a ring, then the converse is true. There are 5 figures, 4 tables and 6 Soviet-bloc references.

ASSOCIATION: Saratovs'kyy derzhavnyy universytet (Saratov State University)

SUBMITTED: November 17, 1961

Card 3/3

X

SHVETSOV, V.A.

Investigating the heat and mass transfer of chip packing. Trudy
KHHTI no.26:167-175 '59. (MIRA 15:5)
(Packed towers) (Mass transfer) (Heat—Transmission)

S/138/59/000/012/002/006

AUTHORS: Shvetsov, V. A., Pisarenko, A. P., Novikov, A. S.

TITLE: An Investigation Into the Properties of Filled Nitrile Rubbers.
Communication 1. The Properties of Filled Silicate-Nitrile
Rubbers 15

PERIODICAL: Kauchuk i Rezina, 1959, No. 12, pp. 4-8

TEXT: At present two types of powdered silica gel are manufactured in the Soviet Union, viz. soft and hard silica gel, imparting different properties to the rubber. It is further stated that powdered silica gel is irreplaceable as an accelerator in the production of colored rubber based on synthetic rubbers with high mechanical indices and has many advantages over the carbon blacks. One of the most popular types of silica gel is aerosil, which is just as active as any carbon black. It is pointed out that the Soviet rubber industry lacks sufficient quantities of the silica gel accelerators and the available types have some serious disadvantages due to the backward production methods used. Their quality is not homogeneous. The necessity of producing filled rubbers based on synthetic raw material by some other means is pointed out. A short survey is given

Card 1/4

S/138/59/000/012/002/006

An Investigation Into the Properties of Filled Nitrile Rubbers.

Communication 1. The Properties of Filled Silicate-Nitrile Rubbers

of the methods recently used for this purpose. The All-Union Scientific Research Institute of Film Materials and Artificial Leather (VNIIPK) developed in 1951-1953 a method for the production of filled butadiene-styrene rubbers, using silicates of various metals obtained in the latex as fillers. The CKH-18 (SKN-18), CKH-26 (SKN-26) and CKH-40 (SKN-40) type butadiene-nitrile rubbers are used in the rubber industry for the production of oil-resistant rubber. The authors were particularly interested in determining the possibilities of producing oil-resistant and heat-resistant butadiene-nitrile rubbers, filled with silicate fillers during the latex stage. These rubbers were named silicate-nitrile rubbers. It was shown that the strength of the rubber increases considerably when the filler is introduced in the latex stage, and much less so, when introduced on the rollers. This is true even for small quantities of the filler, such as 20 weight parts of filler to 100 weight parts of the rubber. For greater amounts of filler, e.g. 60 weight parts of filler to 100 weight parts of rubber the relative elongation is 575-674%. The high structuralizing properties of the silicate fillers obtained in the latex can be seen from the hardness determination according to Defoe. The mechanical processing of the

Card 2/4

S/138/59/000/012/002/006

An Investigation Into the Properties of Filled Nitrile Rubbers.

Communication 1. The Properties of Filled Silicate-Nitrile Rubbers

silicate-nitrile rubbers presents little difficulty in spite of the high values of hardness according to Defoe due to the weakening of the secondary rubber-filler bonds and due to an increase in the fluidity of the mixture caused by an increase in the mixing temperature. The rupture-, wear-resistance and the elasticity of the rubbers filled in the latex is higher than those filled on the rollers. The former also have a better roadability. The thermal-resistance is the same. Tables 2 and 3 give the comparative figures of the various properties. At elevated temperatures the rubbers filled in the latex retain their strength better than those filled on the rollers, they have better resistance to thermal aging. The aging was carried out at 100, 110, 120 and 130°C lasting from 12 hours to 10 days. The high resistance to aging of the vulcanizates is explained by the active filler blocking the double bonds of the hydrocarbon rubber, which decreases the reactivity of the rubbers, inhibiting the development of the oxidizing processes (Ref. 5). Long-lasting storage does not change the properties of the silicate-nitrile vulcanizates, which is of practical significance in the mass production of this rubber in the form of chunks. SKN-26 rubber with 60 weight parts of calcium silicate and filled in the latex stage will

Card 3/4

S/138/59/000/012/002/006

An Investigation Into the Properties of Filled Nitrile Rubbers.

Communication 1. The Properties of Filled Silicate-Nitrile Rubbers

dissolve to only 16.5% in a 75% chlorobenzene and 25% n-dichlorobenzene system, whereas without the filler it would dissolve completely. The vulcanizate with a silicate-nitrile base has a high resistance to swelling, corresponding to the swelling observed in the SKN-26-based rubbers. Rubbers produced from silicate-nitrile raw material have better properties than those produced from nitrile rubbers, where the filler is introduced on the rollers, and are very valuable for the production of various oil-resistant commercial articles. ✓

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti
(Scientific-Research Institute of the Rubber Industry)

Card 4/4

SHVEITSOV, V. A., Cand Tech Sci -- (diss) "Research into the performance of scrubbers with jet nozzles." Kazan', 1960. 14 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Kazan' Chemical Technology Inst im S. M. Zirov); 150 copies; price not given; (KL, 26-60, 159)

85411

S/100/PC/001/001/001/001
2001/001/0

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AUTHORS:

Sorokina, V. A., Novikova, A. S., Blazhenko, A. P.

TITLE:

Study of the Structure of V. Latexes of Reinforced
Butadiene-nitrile Rubbers by Stretching

PERIODICAL:

Vysokomolekulyarnyye soedineniya, 1968, Vol. 1, No. 1,
pp. 1608 - 1612

TEXT: The authors wanted to find out whether the semi-empirical equation for elongation as a function of stress, as developed by A. F. Blanchard and D. Parkinson (Ref.4), was also applicable to butadiene-nitrile rubbers filled with channel black or aluminum hydroxide. The Blanchard-Parkinson equation is written down: $\sigma/F = G(\lambda - 1)^2$, where σ is the stress, F denotes the stress per unit area of the undeformed section, λ is the number of elongations, G a module which is proportional to all bonds, including the sulfur bonds of the vulcanizate, and λ is a factor characterizing the interaction between rubber and filler. The authors first conducted tests with CKH-26 (SKN-26) rubber filled with channel black, also with silicone, or aluminum hydroxide. The rubber used was

85411

Study of the Structure of Vulcanizates of S/100/50/001/001/003/001
Reinforced Butadiene-nitrile Rubbers by B004/B060

...heated at 20°C at a rate of 200 mm/min, after undergoing a preliminary stretching with 30-120 kg/cm² repeated four times. The change of ... in an increase of preliminary stretching is shown in ...

Part 2/5

85411

Study of the Structure of Vulcanizates of
Reinforced Butadiene-nitrile Rubbers by
Stretching

S/190/10/002/011/002/027
2004/3060

Values of G at a preliminary stretching of kg/cm ² : (1)	Composition of rubbers in parts by volume			
	Natural rubber with 28 channel slack (2)	SKN-26 with 28 on block (3)	SKN-26 with 17 on block (4)	SKN-26 with 28 aluminum (5) neoprene (6)
without prior stretching	9.2	8.8	6.5	8.6
G 50	9.1	8.3	6.0	8.0
G 80	7.5	6.1	4.5	4.9
G 120	6.2	4.15	2.85	2.1
Bonds left over after maximum stretching	27.1	47.0	15.7	24.5

Moreover, values are given for the coefficients G , G^* , and G_0 . (G^* is
the coefficient of primary bonds, G_0 the coefficient of secondary bonds)

Card 3/5

85411

Study of the Structure of Vulcanizates of Reinforced Butadiene-nitrile Rubbers by Stretching S/44/60/002/01/002/027
E001/B060

Calculations were made on the basis of equation $G = G' + G_0 S(x)$.

$x = \alpha S/G^{2/3}$ is written for x , S being the stress in the initial cross section.

Table 2

Composition of rubbers in parts by volume	G	G_0	G'
Natural rubber with 28 ph. black	9.2	5.2	4.0
SKN-26 with 28 ph. black	8.8	3.8	5.0
SKN-26 with 17 ph. black	6.3	2.7	3.6
SKN-26 with 28 $Al(OH)_3$	8.6	1.2	7.4
SKN-26 with 17 $Al(OH)_3$	6.0	0.9	5.1

Basing on these data, the following conclusions are reached: 1) The Blanchard equation is also applicable to butadiene-nitrile rubber

Card 4/5

85411

Study of the Structure of Vulcanizates of
Reinforced Butadiene-nitrile Rubbers by
Stretching

S/90/60/002/001/002/001
B004/3060

filled with channel black or aluminum hydroxide. 2) Vulcanizates from
butadiene-nitrile rubber filled with aluminum hydroxide are softened up
to a higher degree than the same rubbers filled with channel black.
3) Natural rubber has more primary bonds, while SKN-26 filled with
channel black, but especially with aluminum hydroxide, has more second-
ary bonds. The structure of the vulcanizates therefore differs.
G. A. Patrikeyev is mentioned. There are 2 figures, 2 tables, and 1 refer-
ence list: 2 Soviet, 2 US, 2 British, and 1 German.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinoy
promyshlennosti (Scientific Research Institute of
the Rubber Industry)

SUBMITTED: February 2, 1960

Card 3/5

83837

S/138/60/000/004/003/008
A051/A029

15.9200 also 2209

11.2220
AUTHORS:

Shvetsov, V.A., Novikov, A.S., Pisarenko, A.P.

TITLE:

The Properties of Filled Aluminate-Nitrile Rubbers 15

PERIODICAL:

Kauchuk i Rezina, 1960, ¹⁹No. 4, pp. 12 - 17

TEXT:

The results of the development of a method for producing nitrile rubbers filled with aluminum hydroxide in the latex (called aluminate-nitrile rubber) are given. With this method it is possible to produce vulcanizates with high physico-mechanical properties. No complex apparatus is necessary and the aluminate-nitrile rubbers have a higher mechanical resistance than the silicate-nitrile rubbers. The CKH-18 (SKN-18) and the CKH-26 (SKN-26) latexes were used in the production of the aluminate-nitrile rubber. Vulcanizates produced from aluminate-nitrile rubber have a high elasticity. The specific elongation in SKN-26 reaches 1,000 - 1,100%. Rubbers with aluminum hydroxide obtained from the latex, as well as that with introduction on the rollers have an elevated residual elongation and a high resistance to wear and tear. The resistance to repeated bending and crack growth is higher in vulcanizates with aluminum hydroxide introduced into the latex

Card 1/4

83837

S/138/60/000/004/003/008
A051/A029

The Properties of Filled Aluminate-Nitrile Rubbers

compared to introduction on the rollers only. In order to study the resistance of the rubber to thermal effect, samples of various vulcanizates were subjected to aging in a thermostat at temperatures 100, 120 and 130°C, beginning with 12 hours and lasting up to 10 days. The best results showed rubbers with aluminum hydroxide introduced on the rollers. Aluminate-nitrile rubbers can be stored for a long time without changing their properties. The authors attempted to discover why the filler obtained in the latex has a higher strengthening power as compared to the filler produced separately and introduced into the rubber on the rollers. They also tried to determine the comparative properties of mineral fillers of the potassium silicate and aluminum hydroxide types, e.g., gaseous channel carbon black. The structuralizing role played by the fillers was investigated experimentally and found to correspond favorably with previous data (Refs. 2 - 5). The experiments also showed that the high strengthening ability of calcium silicate and aluminum hydroxide obtained in the latex can be explained by the high dispersion of the particles of the filler and good distribution of the filler in the rubber mass, as well as the absence of aggregation of the particles, formation of structures by the filler and the ability of the filler to form a bond

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S/138/60/000/004/003/008
AO51/A029

The Properties of Filled Aluminate-Nitrile Rubbers

of the adsorption type with the rubber. The experimental data also proved that the presence of the SO₄ group in the molecule does not affect the strengthening ability of aluminum hydroxide produced in the latex, contrary to other opinions. The SO₄ group can have an effect on the crystallization process which takes place when the filler is produced outside of the latex, and, therefore, on the structure and dispersion of the filler and, thus, indirectly on the strengthening ability of the latter. The method developed for producing aluminate-nitrile rubbers has great significance for the Soviet Rubber Industry, since it lowers the energy consumption, the time needed to produce the mixtures and improves the productivity of the mixing apparatus. The rubber produced in the form of chunks enables one to automate the weighing and loading processes during mixing. It also enlarges the assortment of the different rubbers used in the manufacturing of oil-resistant and thermo-resistant rubber products. Finally, this method replaces the use of scarce carbon black, since the aluminate-nitrile rubber yields vulcanizates similar in their properties to that of the vulcanizates on a gaseous carbon black base. There are 6 tables, 1 figure and 10 Soviet references.

Card 3/4

83837

S/138/60/000/004/003/008
A051/A029

The Properties of Filled Aluminate-Nitrile Rubbers

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti
i Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh
materialov i iskusstvennoy kozhi (Scientific Research Insti-
tute of the Rubber Industry and All-Union Scientific Research
Institute of Film Materials and Synthetic Leather) ✓

Card 4/4

69467

S/069/60/022/02/015/024

D034/D002

5*
15.9200
AUTHORS:

Shvetsov, V.A., Pisarenko, A.P., Shtarkh, B.V.,
Novikov, A.S.

TITLE:

An Electron Microscopic Study of the Structures of
Reinforced Rubbers

PERIODICAL:

Kolloidnyy zhurnal, 1960, Vol XXII, Nr 2, pp 233-236
(USSR)

ABSTRACT:

The authors report on the results of an electron microscopic study of the structuration of silicate and aluminate fillers in rubbers of the type SKN-18 and SKN-26. The silicate fillers were obtained from sodium silicate and calcium chloride silicate, the aluminate fillers - from the carbonates of sodium and aluminum sulfate. The study, which was carried out with an electron microscope of the type EM-3 (magnification - 7500), showed in the rubber solutions

Card 1/4

69467

S/069/60/022/02/015/024
D034/D002

An Electron Microscopic Study of the Structures of Reinforced Rubbers

the presence of sol and gel rubber fractions and of loose coagulation structures of the fillers (see electron microscopic photographs on insert). The dispersity of the elementary particles of aluminate fillers is more pronounced than the dispersity of silicate fillers; the visibility of the particles is near the limit of the resolving capacity of the electron microscope. On the whole it could be shown that high dispersity, low aggregation tendencies and the ability to form loose network and chain coagulation structures on the part of the fillers are highly important factors in the reinforcement of rubbers. The authors mention B. Dogadkin and collaborators [Ref. 2], who showed that the main reinforcing action of hydrocarbon blacks consists in the formation of chain and network structures in the

Card 2/4

69467
S/069/60/022/02/015/024
D034/D002

An Electron Microscopic Study of the Structures of Reinforced Rubbers

rubber mixtures. A.P. Pisarenko and collaborators [Ref 5] (in agreement with P.A. Rebinder and his school) showed that the participation of surface-active substances (additives) in the formation of mineral fillers determines basic characteristics of the fillers, as high dispersity and the ability to form chain and network structures. The authors' investigation was carried out on the lines of the results obtained by these scientists. There are 5 electron microscopic photographs on a centerfold and 9 Soviet references. X

ASSOCIATION: Nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi, Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti;

Card 3/4

69467

S/069/60/022/02/015/024
D034/D002

An Electron Microscopic Study of the Structures of Reinforced
Rubbers

Moskva (Scientific Research Institute of Film Ma-
terials and Synthetic Leather, Scientific Research
Institute of the Rubber Industry; Moscow) ✓

SUBMITTED: February 7, 1959

Card 4/4

87768

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15.9200

2109.1209.1429

S/069/60/022/006/005/008
B013/B066

AUTHORS: Shvetsov, V. A., Pisarenko, A. P., and Novikov, A. S.
TITLE: Problem of Investigating the Bond Character in the System
Rubber - Filler
PERIODICAL: Kolloidnyy zhurnal, 1960, Vol. 22, No. 6, pp. 743-747

TEXT: The authors applied the method devised by B. Dogadkin and co-workers (Refs. 1 and 2) to study the dispersion of calcium silicate an aluminum hydroxide in rubber mixtures and in vulcanized rubber. The present paper reports the results with respect to aluminum hydroxide. The partial or complete extraction of aluminum hydroxide from the rubber by boiling in weak NaOH solutions was shown to be possible. The shortest extraction time (2 hours) was found to correspond to the optimum filling of 60 parts by weight. In this case a maximum development of structure occurs with a markedly pronounced continuous phase of the filler, which facilitates the penetration of the solvent into the rubber. With poor filling, the chain structure of the filler is less pronounced, and extraction is more time-consuming. This rule also holds for plasticized

Card 1/3

87768

Problem of Investigating the Bond Character
in the System Rubber - Filler

S/069/60/022/006/005/008
B013/B066

rubbers (binary system rubber - filler). The extraction in this case, however, proceeds more slowly than in rubbers that had not been rolled, which is due to a denser structure and a higher number of rubber - filler bonds. On incorporation of aluminum hydroxide during the rolling less compact rubbers were obtained than on incorporation of the filler into latex. The filler incorporated during rolling was found not to form chain structures. The authors further studied the effect of stearin as a dispersion medium on the properties of the resultant rubber. The extraction of aluminum hydroxide was found to be accelerated by the introduction of stearin. In vulcanized rubbers the aluminum hydroxide extraction takes place in the same way as in non-vulcanized systems. The comparatively easy extraction of aluminum hydroxide from rubber mixtures and vulcanized rubber indicates that prevalently physical bonds, presumably of the adsorption type, are formed between the individual filler and the nitrile rubber. Stable chemical bonds are either not formed at all or only to a low extent. After incorporation of aluminum hydroxide into the latex state and after subsequent extraction of this filler the rubbers disclose properties which differ from the original ones. The mixtures obtained on the basis of extracted (KH-26 (SKN-26) rubber gave much harder vulcanized

Card 2/3

87758

Problem of Investigating the Bond Character
in the System Rubber - Filler

S/069/60/022/006/005/006
B013/B066

rubbers than mixtures of SKN-26 rubber obtained from latex. The tearing strength is in the former case 45 kg/cm² (relative elongation 480%), and in the latter case 31 kg/cm² (relative elongation 510%). The rubbers were dried at 120°C. The higher strength of the vulcanized rubbers obtained from rubber whose filler had been extracted suggests a possible structure formation under the action of aluminum hydroxide, that is to say, the formation of direct bonds between the polymer molecules during the heat treatment of the system rubber - filler. There are 5 figures and 9 references: 5 Soviet, 2 German, 1 US, and 1 British.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti, Moskva (Scientific Research Institute of the Rubber Industry, Moscow) X

SUBMITTED: August 27, 1959

Card 3/5

KOSMODAMIANSKIY, A.S. [Kosmodamianskiy, A.S.] (Saratov);
MEGLINSKIY, V.V. [Meglinskiy, V.V.] (Saratov); SHVETSOV, V.A.
(Saratov)

Stretching of an anisotropic plate having a curvilinear hole
reinforced with a rigid ring. *Prikl.mekh.* 8 no.3:237-247 '62.
(MIRA 15:6)

1. Saratovskiy gosudarstvennyy universitet,
(Elastic plates and shells)

ZIGMUND, F.F.; SHVETSOV, V.A.

Recovery of solvents in industrial enterprises with the method
of two-phase adsorption. Lakokras.mat.i ikh prim. no.2:65-66
'62. (MIRA 15:5)
(Painting, Industrial--Equipment and supplies)

ACCESSION NO: AP4017166

S/0138/64/000/002/0052/0053

AUTHORS: Shvetsov, V. A.; Frenkel', R. Sh.; Pisarenko, A. P.; Zalesskaya, A. D.

TITLE: The use of native clays as raw material for the rubber industry

SOURCE: Kauchuk i rezina, no. 2, 1964, 52-53

TOPIC TAGS: rubber, vulcanized rubber, filler, clay, brown clay, kaolin, physico-mechanical property, scorching, wear, tensile strength, stretch, modulus, deformation, SKS 30 synthetic rubber, SKN 26 synthetic rubber

ABSTRACT: The present study was undertaken to find out whether the abundant brown Khvaly*nsk clays of the Pochtar deposit in the vicinity of the Volga Chemical Industrial Combine could be substituted for kaolin as a filler for SKS-30 and SKN-26 rubber. The brown clay contains (in %) 54.6 SiO₂, 19.1 Al₂O₃, 8.7 Fe₂O₃, 3.4 CaO, and 3.9 MgO, while kaolin contains 46.5 SiO₂, 39.5 Al₂O₃, and no Fe₂O₃, CaO, or MgO.. The specific surface of the brown clay is 56.0 m²/g as against 25.0 m²/g for kaolin. The working of the standard rubber compounds containing either brown clay or kaolin was conducted on laboratory rolls, and the physical and mechanical properties of the obtained vulcanizates evaluated by standard techniques. It was found that in plasticity and resistance to scorching both clays were practically identical,

Card 1/2

ACCESSION NO: AP4017166

but the rate of vulcanization in the presence of brown clay was enhanced, requiring at 143C only 30 minutes as against 50 for kaolin, and the strength of the obtained vulcanizate was higher. However, it required nearly 70-80 parts by weight of the brown clay, as against 40 parts of kaolin, to bring about an optimal strength in the vulcanizate. It was also established that the vulcanizates containing the brown clay have a higher modulus index, a lesser degree of hysteresis, and a higher endurance under multiple deformation stress than kaolin-filled vulcanizates. Orig. art. has: 1 table and 2 charts.

ASSOCIATION: Volzhskiy filial nauchno-issledovatel'skogo instituta rezinovoy promyshlennosti (Volga Branch of the Scientific Research Institute of the Rubber Industry)

SUBMITTED: 00

DATE ACQ: 23Mar64.

ENCL: 00

SUB CODE: CH

NO REF SOV: 000

OTHER: 000

Card 2/2

KOSMODAMIANSKIY, A.S. [Kosmodamians'kyi, O.S.] (Saratov);
MEGLINSKIY, V.V. [Mehlins'kyi, V.V.] (Saratov); SHVETSOV,
V.A. (Saratov)

Stretching of an anisotropic plate with an arch-shaped
hole. Prikl. mekh. 9 no.4:441-446 '63. (MIRA 16:8)

1. Saratovskiy gosudarstvennyy universitet.

KOSMODAMIANSKIY, A.S. [Kosmodamians'kyi, O.S.] (Saratov); MEGLINSKIY, V.V.
[Mehlins'kyi, V.V.]; (Saratov); SHVETSOV, V.A. (Saratov)

Tension of an anisotropic plate with a trapiezoid hole
reinforced with a rigid ring. Prykl. mekh. 9 no.6:683-685 '63.
(MIRA 16:12)

1. Saratovskiy gosudarstvennyy universitet.

ACC NR: AP6036454

SOURCE CODE: UR/0198/66/002/011/0015/0024

AUTHOR: Shvetsov, V. A. (Saratov)

ORG: Saratov State University (Saratovskiy gosudarstvennyy universitet)

TITLE: Elastic equilibrium of an anisotropic plate with a finite number of elliptic holes reinforced by elastic rings

SOURCE: Prikladnaya mekhanika, v. 2, no. 11, 1966, 15-24

TOPIC TAGS: anisotropic plate, orthotropic plate, hole weakened plate, *elastic stress, anisotropic medium*

ABSTRACT: An effective method of analyzing the elastic equilibrium and the state of stress in anisotropic plates weakened by elliptic holes has been developed by A. S. Kosmodamianskiy (Izv. AN Arm SSR, Seriya fiz. matem. nauk, v. 13, no. 6, 1960; Inzhenernyy zhurnal, v. 2, no. 3, 1962; and Prikladnaya mekhanika, v. 1, no. 10, 1965). In this article this method is applied in a case when the edges of N identical elliptic holes in an anisotropic infinite plate are reinforced by identical elliptic anisotropic rings. The centers of holes are equally spaced and their major axes are placed in line; the rings are fastened (glued or soldered) to the plate along their outer contours. The self-balanced stresses in the middle surface of the plate along each hole edge, as well as the state of stress in infinity are given. Determination of stress distributions in the plate and in the reinforcing rings is reduced to determining the functions of complex variables which describe

Cord 1/2

ACC NR: AP6036454

the states of stress in these elements; the formulas for calculating the normal and tangential stresses in them are given. The obtained solution is applied to analysis of stress distribution in an orthotropic plate with two elliptic holes reinforced by rings made of a different orthotropic material. The plate is subjected in infinity to uniform tensions in the direction of the major hole axes and in the direction perpendicular to it; the hole edges are free of external loads. The results of a numerical calculation of stress distribution in a particular plate (with and without rings) performed on the "Ural-2" electronic computer are given in tables and are discussed in detail. Orig. art. has: 2 figures, 25 formulas, and 2 tables. [WA-74]

SUB CODE: 20/ SUBM DATE: 28Dec65/ ORIG REF: 006

Card 2/2

ACC NR: AP6036454

SOURCE CODE: UR/0198/66/002/011/0015/0024

AUTHOR: Shvetsov, V. A. (Saratov)

ORG: Saratov State University (Saratovskiy gosudarstvennyy universitet)

TITLE: Elastic equilibrium of an anisotropic plate with a finite number of elliptic holes reinforced by elastic rings

SOURCE: Prikladnaya mekhanika, v. 2, no. 11, 1966, 15-24

TOPIC TAGS: anisotropic plate, orthotropic plate, hole weakened plate, *elastic stress, anisotropic medium*

ABSTRACT: An effective method of analyzing the elastic equilibrium and the state of stress in anisotropic plates weakened by elliptic holes has been developed by A. S. Kosmodamianskiy (Izv. AN Arm SSR, Seriya fiz. matem. nauk, v. 13, no. 6, 1960; Inzhenernyy zhurnal, v. 2, no. 3, 1962; and Prikladnaya mekhanika, v. 1, no. 10, 1965). In this article this method is applied in a case when the edges of N identical elliptic holes in an anisotropic infinite plate are reinforced by identical elliptic anisotropic rings. The centers of holes are equally spaced and their major axes are placed in line; the rings are fastened (glued or soldered) to the plate along their outer contours. The self-balanced stresses in the middle surface of the plate along each hole edge, as well as the state of stress in infinity are given. Determination of stress distributions in the plate and in the reinforcing rings is reduced to determining the functions of complex variables which describe

Card 1/2

ACC NR: AP6036454

the states of stress in these elements; the formulas for calculating the normal and tangential stresses in them are given. The obtained solution is applied to analysis of stress distribution in an orthotropic plate with two elliptic holes reinforced by rings made of a different orthotropic material. The plate is subjected in infinity to uniform tensions in the direction of the major hole axes and in the direction perpendicular to it; the hole edges are free of external loads. The results of a numerical calculation of stress distribution in a particular plate (with and without rings) performed on the "Ural-2" electronic computer are given in tables and are discussed in detail. Orig. art. has: 2 figures, 25 formulas, and 2 tables. [WA-74]

SUB CODE: 20/ SUBM DATE: 28Dec65/ ORIG REF: 006

Card 2/2

28 (5)

AUTHOR:

Shvetsov, V. B.

SOV/32-25-6-42/53

TITLE:

Application of an Electron Potentiometer as Programming Regulator (Ispol'zovaniye elektronnoy potentsiometri v kachestve programmnoy regulatora)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 6, pp 752-753 (USSR)

ABSTRACT:

The electron potentiometer EPD-02 is in the present case used as a programming regulator for the temperature regulation of electric furnaces without any modification of its construction. Instead of the paper diagram a disk (diameter 280-300 mm) of brass- or copper sheet is fastened on to which a paper is pasted which is formed according to a fixed program (Fig 1). The disk rotates while an electric contact slides on it which is fastened to the indicator; usually the recorder is fastened to the indicator. Two contacts are applied to three-position regulators, each contact being connected with an other indicator (Fig 2). It is possible to change the distance between the electric contacts. There are 2 figures.

Card 1/2

Application of an Electron Potentiometer as
Programming Regulator

SOV/32-25-6-42/53

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut
(Ural Scientific Research Institute of Chemistry)

Card 2/2

SOV/32-25-7-28/50

28(5)
AUTHORS:

Shvetsov, V. B., Pavlushkin, N. M.

TITLE:

News in Brief (Korotkiye soobshcheniya)

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, p 862 (USSR)

ABSTRACT:

V. B. Shvetsov (Ural'skiy nauchno-issledovatel'skiy khimicheskii institut) (Ural Scientific Chemical Research Institute) suggest a device for using the recording galvanometer as a contact galvanometer. Its function as a recording galvanometer was not influenced by its use as a contact galvanometer. In principle, the device is a contact arrangement (Fig) by which the minimum and maximum temperature of a furnace can be fixed. N. M. Pavlushkin (Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva) (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev) describe the preparation of corundum cuts which are used in the investigation of baked corundum samples. The prismatic samples (three samples: 5 x 5 x 18 mm) are pasted on to steel disks (diameter: 25-30 mm) and fixed to a grinding roll with 100 rpm. The samples are cut on cast iron disks (of the type SCHM 32-52) with electrocorundum powder. The following substances are used in cutting: electrocorundum Nr 320 for ten minutes, M-10 for ten minutes, M-5

Card 1/2

SCV/32-25-7-28/50

News in Brief

for 10 minutes, and alumina (annealed at 1450°, grain $> 2\mu$)
for 20 minutes. After cutting the samples are polished.
There is 1 figure.

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut
(Ural Scientific Chemical Research Institute).
Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Men-
deleyeva (Moscow Institute of Chemical Technology imeni
D. I. Mendeleev)

Card 2/2

NIKOLAYEV, Boris Aleksandrovich; REBINDER, B.A., akademik.
retsenzent; VOLAROVICH, B.F., prof., retsenzent; INDEW,
G.S., prof., retsenzent; GRUNER, V.S., prof.,
retsenzent; SHVETSOV, V.G., red.

[Measurement of the structural and mechanical properties
of food products] Izmerenie strukturno-mekhanicheskikh
svoistv pishchevykh produktov. Moskva, Ekonomika, 1964.
222 p. (MIRA 18:3)

SHVETSOV, V. M.

AID P - 1666

Subject : USSR/Engineering

Card 1/2 Pub. 28 - 6/9

Author : Shvetsov, V. M.

Title : Permissible spans and deflection for pipe lines laid on props

Periodical : Energ. byul., 2, 21-24, F 1955

Abstract : While a major part of the pipe system at the heat and electric power plants (TETs) and in the petroleum refineries is laid underground, there is a great deal of piping suspended or laid on props. The author discusses the inadequacy of information pertaining to allowable spans and sags and presents several cases of variations in existing practices. He analyses these data and suggests that generalization of existing experience in construction and long operating records of suspended pipe-systems

AID P - 1666

Energ. byul.,

Card 2/2 Pub. 28 - 6/9

will allow creation of norms for calculation of length of span.

Institutions: Glavenergo (Main Administration of the Power Industry);
Giprogrozneft' (State Institute for Planning of the
Groznyy Petroleum and Gas Industry);
T. ploelektroproyekt (Trust for Planning and Investigation
of Heat and Electric Power Plants, Networks and Sub-
stations)

Submitted : No date

SHVETSOV, V. N.)

VYRSKIY, A.V.; SHVETSOV, V.N.; DEMINA, V.N., redaktor; CHUVANOV, M.I.,
tekhnicheskiiy redaktor

[Wage tables for railroad freight loaders] Tablitsy dlia oprede-
leniia zarabotnoi platy gruzchikov na pogruzochno-razgruzochnykh
rabotakh. Moskva, Gos. statisticheskoe izd-vo, 1953. 158 p.
[Microfilm] (MLRA 7:10)

(Railroads--Freight--Tables, etc.)

(Loading and unloading)

(Wages--Tables and ready-reckoners)

SHVETSOV, Vasilii Nikolayevich

N/5
762.206
.55

SHVETSOV, Vasilii Nikolayevich

Statistika truda na zheleznodorozhnom transporte (Labor statistics in
railroad transportation) Moskva, Transzheldorizdat, 1956.
173 p. diagrs., tables.

SHVETSOV, Vasiliy Nikolayevich; YURCHENKO, I.F., retsenzent; KOLTUNOVA,
M.P., red.; USENKO, L.A., tekhn. red.

[Labor productivity in railroad transportation and ways of
improving it] Proizvoditel'nost' truda na zheleznodorozhnom trans-
porte i puti ee povysheniia. Moskva, Vses. izdatel'sko-poligraf.
ob"edinenie M-va putei soobshcheniia, 1961. 45 p. (MIRA 14:10)
(Railroads—Labor productivity)

SHVETSOV, V.S.

Effect of rectal instillations of water on the activity of
some organs and on the system of horses. Veterinariia 36
no.10:39-41 0 '59. (MIRA 13:1)

1. Ordinators Khar'kovskogo veterinarnogo instituta.
(Enema) (Horses)

YEMEL'YANOVA, O.I.; SHVETSOV, V.S.

Kittens as a model for the study of colienteritis. Zhur. mikrobiol.,
epid. i immun. 40 no.4:93-96 Ap '63. (MIRA 17:5)

1. Iz Khar'kovskogo instituta vaktsin i syvorotok imeni Mechnikova
i Khar'kovskogo veterinarnogo instituta.

SHOL'NIKOV, I.I., Inzh.; SHVETSOV, V.T., Inzh.

Direction in the construction of a monolithic reinforced concrete head-frame for multi-rope hoisting. Shkht. stol. : no. 6:23-24. 1964.
(MIR 17:10)

1. Stroitel'noye upravleniye No.1 trasta Donetskshakhtstroy (for Shol'nikov). 2. Nauchno-issledovatel'skaya stantsiya No.15 kombinata Donetskshakhtostroy (for Shvetsov).

MAKAROV, A.Ya., inzh.; SHVETSOV, V.T., inzh.; KALITS, V., V.I., inzh.

on assembly of multi-rope hoisting machinery in the Donets Basin.
Zhukht. stroi. S no.6:27-29 Je '64. (MIA 17:10)

1. Mashinostroyeniye i stantsiya No. 15 kombinata Donetskshakh-
lostroy.

1. The first of the two main parts of the report is a description of the
theoretical background of the problem. This part is divided into two
sections. The first section is a general discussion of the problem
and the second section is a more detailed discussion of the problem.
The second part of the report is a description of the experimental
work. This part is divided into two sections. The first section is a
description of the experimental setup and the second section is a
description of the experimental results.

SHVETSOV, Ya. I.

Large-block construction of drilling stations in the Tatar A.S.S.R.
Neftianik 2 no.9:4-6 S '57. (MLRA 10:9)

1. Upravlyayushchiy trestom Tamburneft'.
(Tatar A.S.S.R.--Oil well drilling--Equipment and supplies)

SHVETSOV, Ye.M.; SHERMEYSTER, M.S.

Redesign of triple-fired holding furnaces. Metallurg 6
no.10:26-28 0 '61. (MIRA 14:9)

1. Sortoprokatnyy tsekh Nizhne-Tagil'skogo metallurgiche-
skogo kombinata. (Furnaces, Heating)

SOV/126-7-4-1/26

AUTHOR: Shvetsov, Ye.N.

TITLE: On the Theory of Phase Transitions in a Bose Gas

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, Nr 4,
pp 481-490 (USSR)

ABSTRACT: General formulae are derived using the results obtained by Rumer (Ref 1 and 2) for the change in thermodynamic quantities of an ideal Bose gas near the λ -point. Two cases are considered, namely a free boson gas and a charged boson gas in a magnetic field. The latter case is of particular interest since, as was shown in Ref 3 and 4, a charged Bose gas in a magnetic field has the properties of a superconductor. Formulae are derived for the change in the specific heat at the λ -point and also the change in the derivative of the specific heat with respect to temperature at that point. This is done using the known dependence of the number of particles on the chemical potential and temperature (Ref 1). This dependence is given by Eq (1). In the second of the above two cases, it is shown that the change in the specific heat at the λ -point is proportional to the square root of the magnetic field and inversely

Card 1/2

SOV/126-7-4-1/26

on the Theory of Phase Transitions in a Bose Gas

proportional to the square root of the condensation temperature in the absence of the field. This applies to weak fields. In the case of strong fields, the change in the specific heat has a logarithmic dependence on the field. There are 7 references, 6 of which are Soviet and 1 German.

ASSOCIATION: Novosibirskiy gosudarstvennyy pedagogicheskiy institut
(Novosibirsk State Institute of Education)

SUBMITTED: March 7, 1957

Card 2/2

SHVETSOV, Ye.S.; MEKHANOSHIN, S.P.

Distribution of phlogopite deposits in the Aldan mica-bearing
province. Zakonom. razm. polezn. iskop. 6:373-384 '62.
(MIRA 16:6)

1. Yakutskoye geologicheskoye upravleniye.
(Yakutia--Phlogopite)

L 57079-65 EWT(m)/EPF(c)/ENP(j)/T/ENP(t)/ENP(b) Pc-4/Pr-4 LJP(c) JD/RM
 ACCESSION NR: AP5010791 UR/0079/65/035/004/0689/0693
 547.258.2

ADMONS: Andrianov, K. A.; Lavygin, I. A.; Shvetsov, Yu. A.

TITLE: Synthesis and properties of branching 8-hydroxyquinoline titanium
 dimethylsiloxanes of oligomers

SOURCE: Zhurnal obshchey khimii, v. 35, no. 4, 1965, 689-693

TOPIC TAGS: polymer, organic synthesis, titanium, organo metallic compound,
 glass transition temperature, IR spectroscopy, viscosity

ABSTRACT: The synthesis and some properties of the liquid tert(polydimethyl-
 siloxane trimethylsiloxy)-8-hydroxyquinoline titanium oligomers (I) with tri-
 methylsiloxane groups at the branching ends are described. The synthesis of (I)
 was effected by condensation of 8-hydroxyquinoline tributoxy titanium with alpha-
 hydroxy-omega-trimethylsiloxydimethylsiloxane. This yielded oligomers in which
 the degree of polymerization (n) of the trimethylsiloxane branching is 10, 15,
 30, 98, and 136. The glass point of these oligomers is in the interval -102 to
 -118C, and the refractive index declines systematically with increase in degree of
 polymerization. The oligomer structure was studied by IR spectroscopy. A

Card 1/2

L 57079-65

ACCESSION NR: AP5010791

consistent logarithmic decrease in viscosity with increase in temperature indicates that the oligomers are normal liquids within the investigated temperature range. The activation energy in the interval 20-130C ranges from 4.59 kcal/mole for n=15 to 3.62 for n=136. The value drops rapidly at first, then levels off at higher values of n, meaning that the 8-hydroquinoline titanium oxane group determines in great measure the intermolecular reaction. The relation of activation energy to degree of branching is normal for linear polydimethylsiloxanes containing polar groups at the ends of the chains. A tabulation is given for the compositions and properties of the synthesized polymers. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 05Feb64

ENCL: 00

SUB CODE: GC, OC

NO REF SOV: 009

OTHER: 006

482
Card 2/2

VOL'PIN, M.Ye.; ILATOVSKAYA, M.A.; LARIKOV, Ye.I.; KHIDFKEL', M.L.;
SHVETSOV, Yu.A.; SHUR, V.B.

Nitrogen fixation on hydrogen-activating transition metal
complexes. Dokl. AN SSSR 164 no.2:331-333 S '65.

(MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i
Institut khimicheskoy fiziki AN SSSR. Submitted February
15, 1965.

SHVETZOV, YU. B.

"Investigation in the group of Vitamin K. II. Tautomeric and Oxydation-Reduction Transformation of 2-Methyl-1, 4-Naphtoquinone and of its Derivatives". Schukina, L. A. Shvetzov, Yu. B. and Shemiakin, M. M. (p. 330)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1943, Volume 13, no. 4-5.

SHVETZOV, YU. B.

"Investigation in the Group of Vitamin "K". III. On the Mechanism of the Biologic action of Vitamin "K" and of its Synthetic analogues." Shemiakin, M. M. Shchukina, L. A., and Shvetzov, Yu. B. (p. 402)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1943, Volume 13, no. 6.

SHVETSOV, Yu. S. Cand. Chem. Sci.

Dissertation: "Hydrolytic Decomposition of Substituted Triketones of the Naphthalene Series." Inst of Biological and Medical Chemistry, Acad Med Sci USSR, 4 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

SHVETSOV, Yu. B.

USSR/Chemistry - 1,4-Naphthoquinone
Chemistry - Hydrazine

Jan 1948

"Research in the Field of Compounds of Quinoid Structure: II, Reaction of Some Disulfite Derivatives of 1,4-Naphthoquinone with Substituted Hydrazines," D. A. Bochvar, Ye. I. Vinogradova, Yu. B. Shvetsov, M. M. Shemyakin, Lab of Org Chem, Inst of Biol and Med Chem, Acad Med Sci USSR, and Chair of Anal Chem, Moscow Textile Inst, 11 pp

"Zhur Obshch Khim" Vol XVIII (1948), No 1

Study the interrelationship of various types of naphthoquinone derivative bisulfites containing replaceable hydrazines, and observe the properties of the hydrazines formed. Show fallacies contained in formulas suggested by Palladin for bisulfite produced 2-methyl-1,4-naphthoquinone and by Efistsev for bisulfite produced 2-methyl-1,4-naphthoquinone-3-sulfonate

Submitted 14 Jan 1947

PA 64T39

STRENGTH, M. S.

Mem., Lab. Organic Chemistry, Inst. Biol. & Med. Chem., Dept. Medico-Biol. Sci., Acad.
Med. Sci., -1942-1943-. Mem., All-Union Exptl. Biol. Sci. Soc., -1942-; Mem., Chair.
Anal. Chem., Moscow Textile Inst., -1942-. "Investigation in the Group of Vitamin K:
II. Tautomeric and Oxidation-Reduction Transformation of Derivatives of Isoprene," Zhur.
Obshch. Khim., 13, Nos. 4-5, 1943; III. On the Mechanism of the Diologic Action of Vitamin
"K" and of Its Synthetic Analogues," ibid., No. 6, 1943; "Research in the Field of
Compounds of Quinone Structure: II. Reaction of Some Bisulfite Derivatives of P-Naphoquinone
with Substituted Hydrazines," ibid., 18, No. 1, 1943; "Oxidizing and Oxidizing-Hydrolytic
Conversions of Organic Molecules: VII. Hydrolytic Conversions of Chloritri-ketone of a
Tetrahydronaphthalene Series," ibid., 19, No. 3, 1949; "... VIII. Hydrolytic Conversions
of Oct- and Acetoxitri-ketones of a Tetrahydronaphthalene Series," ibid.; "... IX. Study
of Conversion of C-(alpha-Chloropropionyl) Acids into Carboxylic Compounds," ibid.

SHVETSOV, YU. B.

62/49T8

USSR/Chemistry - Cyclic Compounds

Mar 49

"Oxidation and Oxidation-Hydrolysis Conversions of Organic Molecules: IX, Study of Conversion of o-(Alpha-Chloropropionyl) Acids Into Carbocyclic Compounds," Ye. I. Vinogradova, Yu. B. Shvetsov, M. M. Shemyakin, Lab of Org Chem, Inst of Biol and Med Chem, Acad Med Sci USSR, 10 pp

"Zhur Obshch Khim" Vol XIX, No 3

Made a study of conditions and mechanism of the preparation of 5-and 6-member carbocyclic compounds from o-(alpha-chloropropionyl)-phenylglyoxylic acid. Submitted 2 Nov 47.

62/49T8

FDD

SHVETSOV, YU. B.

"Oxidizing and oxidizing-hydrolytic conversions of organic molecules: IX: Study of ways of conversion of o-(- α -chloropropionyl) acids into carboxylic compounds".
Vinogradova, E.I. Shvetsov, YU. B. and Chemisakin, M. M. (p. 507)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1949, Vol. 19, No. 3

Oxidative and oxidative - hydrolytic transformations of organic molecules X Ammonolysis of 3-chloro-1-methyl-1,2,4-*MI* naphthalenetetrone. Yu. B. Shvetsov, I. A. Red'kin, and M. M. Shemvakov. *Zhuk. obshch. khim.* *Khim. i Prikl. Khim.* 21, 339 (1958), (1) (2) 44: 2857-7. 3-Chloro-1-methyl-1,2,4-*MI* naphthalenetetrone (2.6 g) triturated with cooling with 30% NaOH gave upon acidification 63% *o*-*isobutylphenylglyoxylic acid* and lactam (I) m. 189-90° (from EtOAc), and 5% *o*-*isobutylpropionylphenylglyoxylic acid* (II), decomp. 234° (from H₂O), as well as 10% *o*-*isobutyl* in 90°. Similarly 2-chloro-2,4-dichloro-1,4-dihydroxy-2-methyl-1,4-naphthosquinoxone gave a mixt. of I and II separable by EtOAc. It is sol. in hot H₂O and EtOH, and on heating with 30% H₂SO₄ and NaNO₂ yields *o*-*isobutylpropionylphenylbenzoic acid* and lactone, m. 80-1° (from 50% EtOH) and 10% *o*-*isobutylpropionylphenylglyoxylic acid*, m. 190°. If in the cold with 10% NaOH (from H₂O), *o*-*isobutylphenylglyoxylic acid* (III), m. 198° (from H₂O). If with 30% NaOH at 40° gave 94% I. III boiled 4 hrs. with 5% H₂SO₄ yields *o*-*isobutylphenylglyoxylic acid*, decomp. 231°. I is sol. in the usual org. solvents, colors on exposure to light, and on trituration with 10% NaOH readily yields

8417. *Colonythiophenyl glyoxaldehyde*. XI. Mechanism of the S_N1 flooker reaction. I. A. Shchukin, Yu. R. Shchegolev, and M. M. Shenyavskii. *Ibid.* 146-50. The proposed mechanism of the flooker reaction (Fieser and Fieser, 1957, 43, 1831) is incorrect in the formulation of the decarboxylation of bicyclic α -HO acids and their transformations into the final hydroxyaraphonones. The formation of compounds of the types α -HO $\text{C}(\text{COOH})\text{CH}_2\text{COCH}_2\text{HOCH}_2\text{R}$ and $\text{HO}_2\text{C}\text{C}(\text{COOH})\text{CH}_2\text{COCH}_2\text{R}$ proceeds by paths along the synthetic lines indicated by the present writers in earlier publications. Behavior of the OH and the COOH groups is understandable only if their keto-enol tautomerism is taken into account; and the structures $\alpha\text{CH}_2\text{COCH}_2\text{COCH}_2\text{COCH}_2\text{COCH}_2\text{R}$

where X is OH or Cl, proposed by the Fiesers are not to be considered as having been established. Treatment of 2.9 g. α -MeC₆H₄ClCOCH₃ClCOCH₃ in 100 ml. 10% H₂SO₄ at 2° with 1.8 g. CrO₃ in 10 ml. 10% H₂SO₄ and stirring 5 hrs. at gradually rising temp. to 18–20° gave on treatment with

a little NaHSO_4 and extra with LiAlH_4 (1.5 g, 10% aq. soln.)
chloropropionylbenzoic acid lactone, m. $80-1^\circ$ and 16° ,
 phthalic acid. The same lactone forms in 50% yield from
 the anhydride of the above acid with NaNO_2 in hot 30% H_2SO_4 .
 The lactone, m. $80-1^\circ$ (from 50% EtOH), has no active H,
 is sol. in the usual org. solvents, insol. in aq. Na_2CO_3 , and
 slowly sol. in 0.1 N NaOH . A NaOH at $18-20^\circ$ leads to
 profound changes of its structure and complete loss of Cl.
 The lactone with iodine in aq. KI and MeOH in the presence
 of Na_2CO_3 yields 15% CHI_3 . Similar treatment with
 NaNO_2 applied to $\alpha\text{-MeCH(OH)CO}_2\text{C}_6\text{H}_4\text{COCONH}_2$ gives
 57% *(o-lactylphenyl)glyoxylic acid*, decomp. 230° (from
 H_2O), and 10% *o-lactylbenzoic acid lactone*, m. $101-2^\circ$
 (from H_2O), sepd. by extra with C_6H_6 . The latter may be
 obtained from the former in 1.3% yield by oxidation with
 CrO_3 in 10% H_2SO_4 , with attendant formation of 6%
 phthalic acid and of 25% *phthalonic acid*, isolated as its *quin-*
oxaline deriv., m. $238-9^\circ$. The above lactone is also ob-
 tained in 23% yield by CrO_3 oxidation of $\alpha\text{-EtCO}_2\text{C}_6\text{H}_4\text{CO}$
 CO_2H at 16° . This lactone, m. $101-2^\circ$ (from H_2O), is sol.
 in the usual org. solvents, and 0.1 N NaOH at $18-20^\circ$,
 but is insol. in aq. Na_2CO_3 ; rapid acidification of the alk.
 soln. may yield up to 50% unchanged lactone; its reaction
 with iodine-KI in MeOH and 10% Na_2CO_3 yields 18%
 CHI_3 . G. M. Kosolapoff

SHVETSOV, Yu. B., SHEMYAKIN, M. M., SHCHUKINA, L. A., VITKOVSKIY, D. P. and KHOKLOV, A. S.

"Oxidation and Oxidative-Hydrolytic Conversions of Organic Molecules. XIX.
Relation Between the Degree of Oxidation of Carbocyclic Compounds and the Capacity
of Their Ring Groupings to Undergo Hydrolytic Splitting," Zhur. obshch. khim.,
21, No.9, 1951

Lab. Org. Chem., Inst. Biol. & Med. Chem., AMS USSR

SHVETSOV, YU. B.

USSR/Chemistry - Antibiotics 1 Aug 51

"Synthesis and Properties of Alpha-Dichloroacetylamino-beta-Hydroxy-p-Nitropropio-phenone (I)," E. M. Badmas, Ye. I. Vinogradova, D. N. Vitkovskiy, A. S. Khokhlov, Yu. B. Shvetsov, L. A. Shuchukina, Inst of Biol and Med Chem, acad Med Sci USSR

"Dok Ak Nauk SSSR" Vol LXXIX, No 4, pp 6 1-603

It was shown recently, that I is an intermediate product of the enzymatic splitting of chloromycetin by bacteria (G. S. Smith, C. S. Worrel, Arch Biochem, Vol XXVIII, 1, 232, 1950). In the present work, I was synthesized. Gives a description of the synthesis.

PA 211T27

USSR/Chemistry - Antibiotics

21 Sep 52

"Ways of Synthesizing Optically Active Analogs of D-threo-1-(p-nitrophenyl)-2-dichloroacetyl-amino-1,3-propanediol, N.M. Shchegolev, E.N. Baklas, Ye. I. Vinogradova, M.S. Karapetyan, N.N. Kolosov, A.S. Kokhlov, Yu. B. Shvetsov and L.A. Shchukina, Lab of Org Chem, Inst of Biol and Med Chem, Acad Med Sci USSR

Dokl. Akad. Nauk, Vol 86, No 3, pp 545-548

Of the four stereoisomers of 1-(p-nitrophenyl)-2-dichloroacetyl-amino-1,3-propanediol, only one (the d-threo-isomer) is antibacterially active (chloromycetin, chloramphenicol, levorycetin). To learn the relationship between the structure of these compus and antibacterial activity, more analogs of these compus must be synthesized. Two ways of synthesis have been worked out at present. D-or L-threo-1-(p-nitrophenyl)-2-amino-1,3-propanediol (I) is converted into the N-benzoyl derivative (II) which is reduced to the corresponding amino compd (III). This is diazotized into (IV). The diazo group is then substituted in several different ways to form an optically active compd (V). The benzoyl group is then removed from (V) to form the aminodiol (VI) which is dichloroacetylated into (VII). The other synthesis also starts with (I) which is reduced to the diamino compound (VIII). This is N-dichloroacetylated into the hydrochloride (IX) which is diazotized into (X). (X) is converted into (VII) in the same way as (I) was into (V). Reaction schemes are shown in the original paper. Presented by Acad V.M. Rodionov 14 Jul 52

PA 247T11

SHEMYAKIN, M.M.; BAMDAS, E.M.; VINOGRADOVA, Ye.I.; KARAPET'YAN, M.G.; KOLOSOV, M.N.;
KHOKHLOV, A.S.; SHVETSOV, Yu.B.; SHCHUKINA, L.A.

Research on the chemistry of chloromycetin (levomycetin). Part 2. Study of
the course of synthesis and the synthesis of optically-active analogs of
chloromycetin (levomycetin). Zhur.ob.khim. 23 no.11:1854-1867 N '53.
(MIRA 6:11)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk
SSSR. (Chloromycetin)

SHIL 1309, YC 11

1100

9

Chemistry of chloromycetin (levomycetin). V. Racemization of 1-threo-1-(p-nitrophenyl)-2-dichloroacetamido-1,3-propanediol with subsequent transformation of the racemate into chloromycetin (levomycetin). M. M. Shemyakin, E. M. Bamdas, E. I. Vinogradova, D. P. Vukrovskii, M. A. Guberniev, V. N. Orefimovich, A. S. Khokhlov, Yu. B. Shvetsov, and L. A. Shchukina. *J. Gen. Chem. U.S.S.R.* 24, 2222-2226 (1954) (Engl. translation).—See *C.A.* 49, 14674a.

PM

SHEMYAKIN, M.M.; BAMDAS, E.M.; VINOGRADOVA, Ye.I.; GUBERNIYEV, M.A.;
OREKHOVICH, V.N.; KHOKHLOV, A.S.; SHVETSOV, Yu.B.; SHCHUKINA, L.A.

Research in the chemistry of chloromycetin (levomycetin). Race-
mization of *L*-threo-1-(*m*-nitrophenyl)-2-dichloroacetyl-amino-1,3-
propanediol. Dokl. AN SSSR 94 no.2:257-259 Ja '54. (MLRA 7:1)

1. Chlen korrespondent Akademii nauk SSSR (for Shemyakin).
2. Deystvitel'nyy chlen ~~AMN~~ SSSR (for Orekhovich). 3. Institut
biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk
SSSR. (Racemization) (Propanediol)

VOROZHTSOV, Nikolay Nikolayevich, 1881-1941; VOROZHTSOV, N.N. (Jr.),
redaktor; SHVETSOV, Yu.B., redaktor; LUR'YE, M.S., tekhnicheskii
redaktor; POGUDKIN, P.V., tekhnicheskii redaktor

[Fundamentals of the synthesis of intermediate products and dyes]
Osnovy sinteza promyshlennyykh produktov i krasitelei. 4-e izd.
Moskva, Gos. nauchno-tekhn. izd-vo khimicheskoi lit-ry, 1955. 839 p.
(MIRA 9:3)

(Chemistry, Organic--Synthesis) (Synthetic products) (Dyes and
dyeing--Chemistry)

2

SHVETSOV, Yu. B.

CH ✓ Chemistry of chloromycetin (levomycetin). VI. Synthesis of new optically active analogs of chloromycetin (levomycetin). M. M. Shemyakin, M. N. Kolosov, M. G. Karapetyan, E. M. Bamdas, Yu. B. Shvetsov, E. I. Vinogradova, and L. A. Shehukina. *Zhur. Obshchei Khim.* 25, 1199-1206 (1955); cf. *C.A.* 49, 9466, 14674c. — Diazotization of 10 g. D- or L-threo- p -H₂NC₆H₄CH(OH)CH(CH₂OH)NHCOCH₃ (I) in 10% H₂SO₄ at 0-3° with NaNO₂ treatment with 40-50 g. SO₂ in 200 g. 25% H₂SO₄ satn. at -10° with SO₂ with slow addn. of 10 g. powd. Cu at -10° followed by filtration, extn. of the filtrate with EtOAc, and evapn. of the dried ext. gave 53-8% p -HO₂SC₆H₄CH(OH)CH(CH₂OH)NHCOCH₃ (further purification by treatment with AcOH); D-threo isomer, softens at 125-7°, $[\alpha]_D^{25}$ -40.8° (Me₂CO); L-threo isomer, softens at 125-6°, $[\alpha]_D^{25}$ 45.2° (Me₂CO). The sulfinic acid (1 g.) in 2 ml. H₂O treated with 0.25 g. NaHCO₃ in 0.5 ml. H₂O and 0.5 g. AgNO₃ gave the ppt. of Ag sulfinate, which dried rapidly in *vacuo* and darkness at 30°, then shaken in the dark with MeI gave 65% p -MeO₂SC₆H₄CH(OH)CH(CH₂OH)NHCOCH₃; D-threo isomer, m. 165-6°, $[\alpha]_D^{25}$ 13.2° (EtOH); L-threo isomer, m. 165-6°, $[\alpha]_D^{25}$ -13.2° (EtOH). Treatment of the sulfinic acid with aq. NaHCO₃, filtration, and

filtered and recrystd. from C₆H₆ gives 1.4 g. BzC(:NOH)CH₂OH (I), leaves, m. 106.5-8.0°. I (500 mg.) in 10 ml. MeOH reduced with Pd-C and H 20 min. at 25°, and the product concd. and recrystd. from MeOH-AcOEt gives 250 mg. dl -PhCH(OH)CH(NH₂)Me.HCl (II), leaves, m. 190-2°. II (40 mg.) in 0.4 ml. water and 0.4 ml. C₆H₆ benzoylated with 30 mg. BzCl and 10% NaOH and the product recrystd. from water give dl -PhCH(OH)CH(NH₂)BzMe (III), needles, m. 142-4°. Catalytic reduction of 300 mg. I in 18 ml. N HCl with 150 mg. 10% Pd-C at 10° (117.6 ml. H absorbed in 1 hr.), the product concd. in *vacuo*, washed with AcOEt, the aq. layer concd., the residue in MeOH treated with Et₂O, the NH₄Cl filtered off, the filtrate concd., the residue in 0.5 ml. C₆H₆ benzoylated with 0.25 g. BzCl and 10% NaOH yields 110 mg. of a mixt. (IV) of dl -N-benzoylnorephedrine and its ψ -isomer, leaves, m. 130-3°; IV heated 5 min. with 1 ml. 10% HCl and the product recrystd. from MeOH-Me₂CO give 89 mg. dl -1-

M.M. SHEMYAKIN

and $p\text{-O}_2\text{NC}_6\text{H}_4\text{COCl}$ gave 95% $p\text{-O}_2\text{NC}_6\text{H}_4\text{CONHC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$; ν -threo isomer, m. 203-4° (decompn.), $[\alpha]_D^{25} -29.3^\circ$. Treatment of $p\text{-HOCC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$ with Me_2SO in the presence of aq. NaOH at 25-30° gave 23% $p\text{-MeOCC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$; ν -threo isomer, m. 101-2°, $[\alpha]_D^{25} -34.2^\circ$ (Me_2CO); ν -threo isomer, m. 101-2°, $[\alpha]_D^{25} 33.2^\circ$ (Me_2CO); ν -threo form, m. 107-7.5°. $p\text{-HOCC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$ treated with aq. NaHCO_3 , followed by AgNO_3 , and the dried Ag salt treated with MeI 8 hrs. gave 80% $p\text{-MeOCC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$; ν -threo isomer, m. 128-9°, $[\alpha]_D^{25} -29.0^\circ$ (Me_2CO). I.HCl treated with KOAc in MeOH, followed by BzH , kept 1 hr. at 20° and heated to reflux, gave after diln. with H_2O 71% $p\text{-PhCH:NC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$; ν -threo isomer, m. 153-4°, $[\alpha]_D^{25} -47.5^\circ$ (Me_2CO); ν -threo isomer, m. 153-4°, $[\alpha]_D^{25} 45.6^\circ$ (Me_2CO); ν -threo form, m. 146-7°. I.HCl in MeOH with KOAc, followed by PhNO in AcOH gave after 12 hrs. at 15-20° and diln. with H_2O 40% $p\text{-PhN:NC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$; ν -threo isomer, m. 144-5°, $[\alpha]_D^{25} -50.1^\circ$ (Me_2CO); ν -threo isomer, m. 144-5°, $[\alpha]_D^{25} 57.1^\circ$ (Me_2CO); ν -threo form, m. 150-1°. I.HCl with NaOAc in MeOH, followed by $m\text{-ONC}_6\text{H}_4\text{NO}_2$ in AcOH 20 hrs. at 4-5° gave

76% $p\text{-(m-O}_2\text{NC}_6\text{H}_4\text{N:N)}\text{C}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$; ν -threo isomer, m. about 100°, $[\alpha]_D^{25} -41.2^\circ$ (Me_2CO); the product crystallizes with 1.5 moles solvent (CCl_4 or C_6H_6). I.HCl diazotized in aq. HCl and treated with PhOH in aq. NaOH- Na_2CO_3 gave 52% $p\text{-(p-HOCC}_6\text{H}_4\text{N:N)}\text{C}_6\text{H}_4\text{CH}(\text{OH})\text{CH}(\text{CH}_3\text{OH})\text{NHCOCHCl}_2$; ν -threo isomer, m. 179-81°, $[\alpha]_D^{25} -59^\circ$ (Me_2CO); ν -threo isomer, m. 179-81°, $[\alpha]_D^{25} 57.1^\circ$ (Me_2CO); ν -threo form, m. 171-3°. Also in *J. Gen. Chem. U.S.S.R.* 25, 1147-51 (1955) (Engl. translation). G. M. Kosolapoff

SHVETSOV, Yu. B.

USSR/Chemistry - Antibiotics

Card 1/2 Pub. 22 - 27/54

Authors : Shemyakin, M. M., Memb. Cor. Acad. of Sc., USSR; Kolosov, M. N.; Levitov, M. M.; Germanova, K. I.; Karapetyan, M. G.; Shvetsov, Yu. B.; and Bandas, E. M.

Title : Relation between structure and antimicrobial activity of chloromycetin (levomycetin) and the mechanism of its reaction

Periodical : Dok. AN SSSR 102/5, 953-956, Jun 11, 1955

Abstract : It is shown that the high selectivity of the biological effect of chloromycetin on microbes is determined simultaneously by the following factors: 1) strong polarizing effect of the p-nitrophenyl radical, the geometrical dimensions of which are of no importance; 2) strong polarizing effect of the dichloroacetyl radical, which should satisfy even the most specific geometrical requirements; and 3) defined geometrical dimensions and corresponding conformation of the aminopropanediol group. The relation between the structure and biological activity of chloromycetin is explained.

Institution : Acad. of Med. Sc., USSR, Inst. of Biol. and Med. Chem.

Submitted : January 27, 1955

Translation in / M

Card 2/2 Pub. 22 - 27/54

Periodical : Dok. AN SSSR 102/5, 953-956, Jun 11, 1955

Abstract : Five references: 2 USSR and 3 USA (1858-1955). Diagrams.

SHEMYAKIN, M.M.; KOLOSOV, M.N.; LEVITOV, M.M.; GERMANOVA, K.I.;
KARAPETYAN, M.G.; SHVETSOV, Yu.B.; BAMDAS, E.M.

Chemistry of chloromycetin (levomycetin). Part 8. Relation of the
antibacterial activity of chloromycetin to its structure and the
mechanism of this activity. Zhur.ob.khim. 26 no.3:773-782 Mr '56.
(MLRA 9:8)

1. Institut biologicheskoy i meditsinskoy khimii Akademii
meditsinskikh nauk SSSR.

(Chloromycetin)

SHEMYAKIN, M.M.; SHCHUKINA, L.A.; VINOGRADOVA, Ye.I.; KOLOSOV, M.N.; VDOVINA, R.G.; KARAPETYAN, M.G.; RODIONOV, V.Ya.; RAVDEL', G.A.; SHVETSOV, Yu.B.,
BAMDAS, E.M.; CHAMAN, Ye.S.; YERMOLAYEV, K.M.; SEMKIN, Ye.P.

Research data on sarkomycin and its analogues. Part 1: Synthesis of dihydrosarkomycin and its antipode. Zhur. ob. khim. 27 no.3:742-748 (MLR 10:6)
Mr '57.

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.

(Sarkomycin)

SHEMYAKIN, M.M.; RA~~U~~^U~~S~~^S~~L^L, G.A.; CHAMAN, Ye.S.; SHVETSOV, Yu.B.; VINOGRADOVA, Ye.I.~~

Synthesis of racemic sarkomycin..Izv. AN SSSR. Otd. khim. nauk
no.8:1007 Ag '57. (MIRA 11:2)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsin-
skikh nauk SSSR.

(Sarkomycin)

SHVETSOV, Yu. B.

5: 300, 5: 300, 5: 300

77077

307/62-59-12-21/43

AUTHORS: Shemyakin, M. M., Ravdel', G. A., Chaman, E. S.,
Shvetsov, Yu. B., Vinogradova, E. I., Vdovina, R. G.,
Yermolayev, K. M., Bاندas, E. M.

TITLE: Studies in the Field of Sarcosine and Its Analogs.
Communication 4. Study of Synthetic Routes to Sar-
cosine and Its Analogs

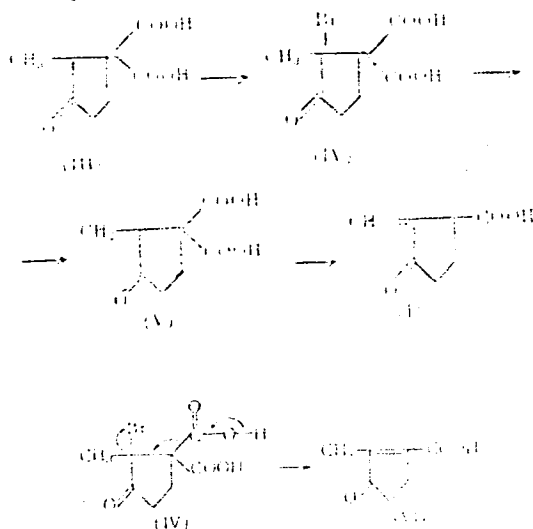
PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
nauk, 1959, Nr 12, pp 2177-2187 (USSR)

ABSTRACT: 2-Methylcyclopentan-3-one-1,1-dicarboxylic acid (III)
was used for the preparation of (Sarcosine) 2-methyl-
ene-cyclopentanone-3-carboxylic acid (I). (III) was
assumed to be converted into (V) by bromination. It
seemed possible to synthesize (I) from (V) by removal
of HBr and by decarboxylation. Diacid (V) could not
be obtained because elimination of HBr from (IV) and
simultaneous decarboxylation formed (VI) with an
endocyclic double bond.

Card 1/10

Studies in the Field of Sarcomycine and
Its Analogs. Communication 4. Study of
Synthetic Routes to Sarcomycine and Its
Analogues

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SCN/62-59-12-21/43



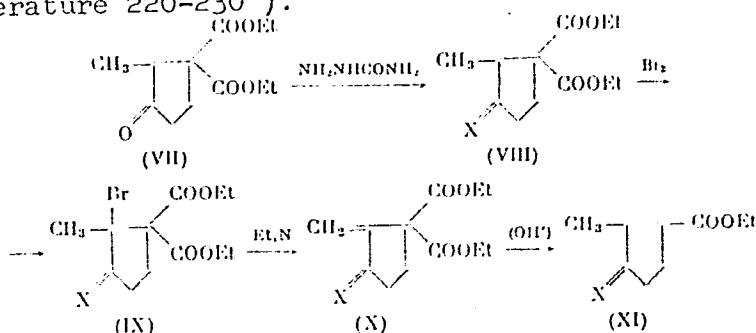
Card 2/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077

SOV/62-59-12-21/43

The semicarbazone of the diethyl ester of 2-methylcyclopentan-3-one-1,1-dicarboxylic acid (VIII) was brominated, and after eliminating HBr the semicarbazone of the diethyl ester of 2-methylenecyclopentan-3-one-1,1-dicarboxylic acid (X) was obtained in 56% yield (mp 207-209°). Diester (X) was saponified and the semicarbazone of the ethyl ester of 2-methylcyclopenten-1-one-3-carboxylic acid (XI) was obtained, in 74% yield (dec. temperature 220-230°).



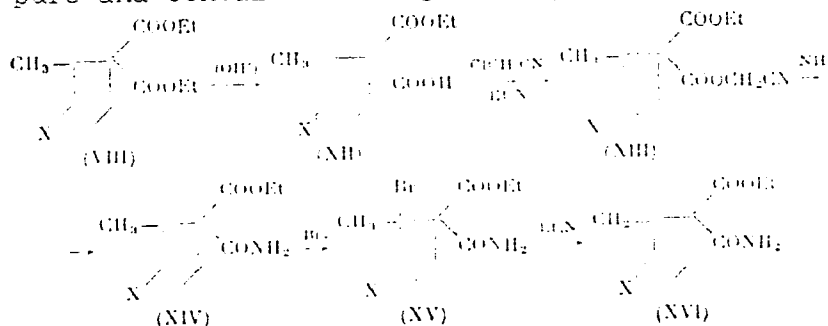
where X = NNHCONH₂.

Card 3/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077
SOV/62-59-12-21/43

Attempts were made to convert the semicarbazone of the amide of 1-carbethoxy-2-methylcyclopentanone-3-carboxylic acid (XIV) into the semicarbazone of the amide of 1-carbethoxy-2-methylenecyclopentanone-3-carboxylic acid (XVI), but the isolated compound (XVI) was not pure and contained from 30 to 40% polymeric material.



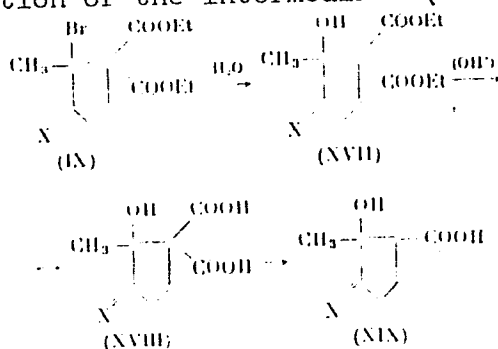
Card 4/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077

SOV/62-59-12-21/43

Semicarbazone of the diethyl ester of 2-methylcyclopentan-2-olone-3-carboxylic acid (XVII) was obtained, in 81% yield (mp 160-161°), from (IX) by reaction with water. Semicarbazone of 2-methylcyclopentan-2-olone-3-carboxylic acid (XIX) was prepared in 38% yield (mp 187-188°) by saponification of (XVII) and by subsequent decarboxylation of the intermediate (XVIII).



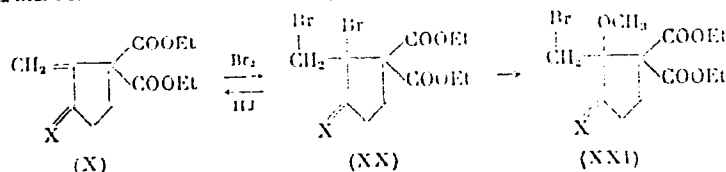
Card 5/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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SOV/62-59-12-21/43

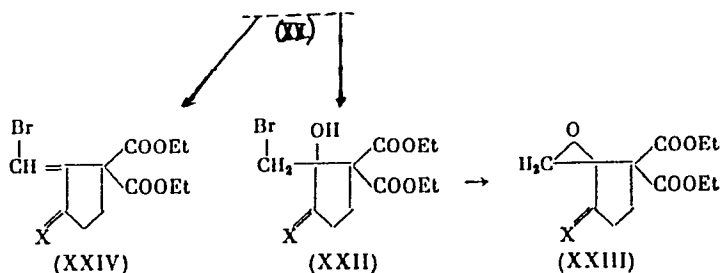
Dibromide (XX) was obtained quantitatively (mp 82-85° dec.) by addition of two bromine atoms to the diester (X). In the compound (XX) one bromine atom (position 2) is very labile. (XX) reacts with CH₃OH or H₂O forming corresponding compounds (XXI) in 65% yield (mp 138-139°) or (XXII) in 83% yield (mp 148-149°). The labile bromine atom in compound (XX) can quantitatively oxidize KI to free iodine, in the cold, but the obtained product can not be isolated, because the reaction is accompanied by elimination of HBr and formation of diester (X) in 71% yield (mp 207° dec.).



Card 6/10

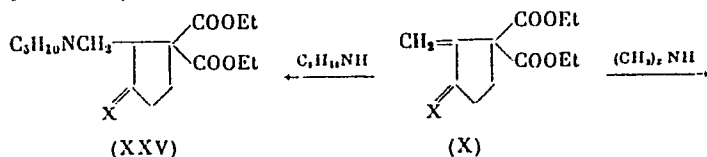
Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077
SOV/62-59-12-21/43



where X = NNHCONH₂.

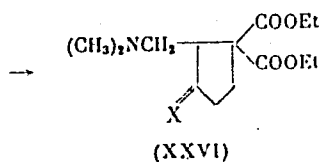
Compound (X) was converted into corresponding amines (XXV), in 17% yield (mp 124-126°), and (XXVI), in 62% yield (m p 160-161°), according to the reaction:



Card 7/10

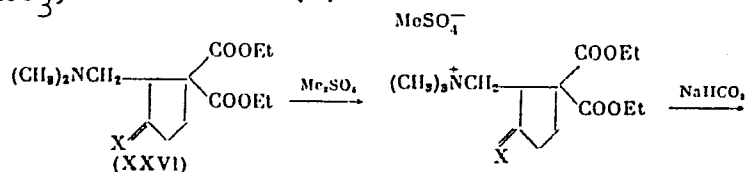
Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077
SOV/62-59-12-21/43



where X = NNHCONH₂.

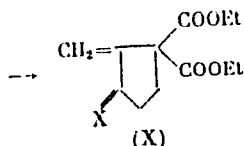
Amine (XXVI) reacted with (CH₃)₂SO₄, in the presence of NaHCO₃, and diester (X) was obtained in 75% yield.



Card 8/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077
SOV/62-59-12-21/43



where X = NNHCONH₂.

The synthesis of (I) may take place as follows: amines of (XXV-XXVI)-type, after hydrolysis, decarboxylation, and formation of the methylene group, can be converted into (I). The results of investigation will be published in a forthcoming communication. There are 9 references, 3 Soviet, 1 German, 2 Japanese, 1 U.K., 2 U.S. The 3 U.S. and U.K. references are: Chem. and Industr. 1957, 1320; E. J. Corey, J. Amer. Chem. Soc. 75, 1163 (1953); J. R. Hooper, L. C. Cheney et al., Antibiot. and Chemother. 5, 585 (1955).

Card 9/10

Studies in the Field of Sarcomycine and
Its Analogs. Communication 4. Study of
Synthetic Routes to Sarcomycine and Its
Analogs

77077

SOV/62-59-12-21/43

ASSOCIATION: Institute of Biological and Medical Chemistry, Academy
of Medical Sciences (Institut biologicheskoy i meditsinskoy khimii Akademii medicinskikh nauk)

SUBMITTED: April 12, 1958; Additions made, December 28, 1958

Card 10/10

5.3400, 5.3600, 5.3610

77078

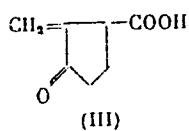
SOV/62-59-12-22/43

AUTHORS: Shemyakin, M. M., Ravdel', G. A. Chaman, E. S., Shvetsov, Yu. B., Vinogradova, E. I.

TITLE: Investigation in the Field of Sarcomycine and Its Analogs. Communication 5. Synthesis of Racemic Sarcomycine

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 12, pp 2187-2194 (USSR)

ABSTRACT: Racemic sarcomycine (III) was synthesized in the form of its semicarbazone (XVIII).

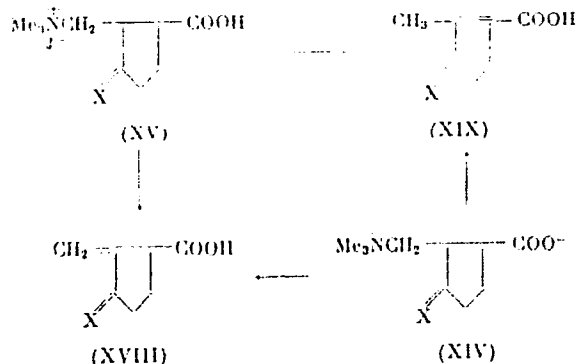


Card 1/4

Investigation in the Field of Sarcomycine
and Its Analogs. Communication 5. Synthesis
of Racemic Sarcomycine

77078

SOV/62-59-12-22/43



X = NNHCONH₂

The ethyl ester of 2-dimethylaminomethylcyclopentanone-3-carboxylic acid (XI) was used as starting material for the preparation of (III). Racemic sarcomycine in the form of its semicarbazone (XVII) can be obtained, in 39% yield, from the methiodide of acid (XV) or from betaine (XIV) together with the semicarbazone of 2-methylcyclopenten-1-one-3-carboxylic acid (XIX). For

Card 2/4

Investigation in the Field of Sarcomycine
and Its Analogs. Communication 5. Synthesis
of Racemic Sarcomycine

77078

SOV/62-59-12-22/43

this purpose (XV) or (XIV) is heated on a water bath for 4 minutes with 2 moles (for betaine 1 mole) of 1N NaOH. The solution was cooled to 0-20°, 10% HCl was added, and after 30 minutes the precipitate was removed by filtration and washed with cold water. The mixture of (XVIII) and (XIX) was obtained in 39% yield. The compound turns black on heating, but does not melt. Found: C 48.87%; H 6.02%. $C_8H_{11}O_3N_3$. Calculated:

48.75%; H 5.63%. From the above mixture, the semi-carbazone of racemic sarcomycine (XVIII) was isolated by crystallization, in 50-55% yield. There are 3 references, 3 Soviet, 1 Japanese, 1 U.K., 3 U.S. The 4 U.S. and U.K. references are: Chem. and Industr. 1957, 1320. G. Buchi, N. G. Yang and Others, Chem. and Industr. 1953, 1063; J. Meinwald, S. L. Emerman and others., J. Amer. Chem. Soc. 77, 4401 (1955); E. E. Van Tamelen, S. R. Bach, J. Amer. Chem. Soc. 77, 4683 (1955).

Card 3/4

Investigation in the Field of Sarcomycine
and Its Analogs. Communication 5. Synthesis
of Racemic Sarcomycine

77078
SOV/62-59-12-22/43

ASSOCIATION: Institute of Biological and Medical Chemistry, Academy
of Medical Sciences (Institut biologicheskoy i meditsin-
skoy khimii Akademii meditsinskikh nauk)

SUBMITTED: April 12, 1958; Additions made, December 28, 1958

Card 4/4

SHCHUKINA, L.A.; VDOVINA, R.G.; SHVETSOV, Yu.B.; KARPOVA, A.V.

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